

APHTHOUS FEVER, SCOURGE of the CATTLE YARDS

APRIL BY A. S. MARCH



Boarded up of 1200 Steers infected with Foot and Mouth Disease

RECENTLY the United States authorities were called upon to combat and defeat apthous fever, the deadly and dreaded scourge of the cattle ranges and yards. All the tremendous resources of the national government were exerted to cut off in detail the mysterious forces of this unseen, yet remorseless enemy of our greatest single source of national wealth; for no other kind of production equals in value the output of our live stock industry, including as it does over a dozen important branches of sub and by-products, any one of them involving a trade mounting far up in the tens of millions.

The live stock trade of the United States in a single year runs close to a billion of dollars and when all this has been devoured there yet remains an invested capital of over a billion more in the form of actual live stock or products evolved from the varied and various branches of industry, primarily depending on cloven foot animals. In this class are included cattle, sheep and hogs, for each and every variety of animal that walks on a cleft or divided hoof is subject to the dread foot and mouth disease.

Two Outbreaks Last Year.

In 1908 but two important outbreaks of foot and mouth disease (as apthous fever is called in the vernacular) were chronicled in the United States. The first was in the Middle West and caused only local disaster and was promptly stamped out by sudden extermination of the cattle involved. The second attack occurred in the Middle Atlantic states and led to an embargo of exporting cattle from two great sources and the destruction of thousands of dollars' worth of stock. In both cases the United States authorities took immediate charge of the situation and the national treasury was called upon to pay the owners the value of the cattle infected and destroyed.

Before detailing the appearance of this dread cattle disease which causes a constant standing expense amounting to several millions annually, the origin of this epidemic is especially interesting. The first outbreaks of foot and mouth disease were simply termed epizootics by farmers hundreds of years back, and the disease, like every other known scourge but two, originated in the crowded sections of Central Asia.



Cow with Distended Udder caused by Apthous Fever. The Udders often burst, causing death.



Apparently healthy herd about to be slaughtered on account of foot and mouth disease

Cattle plagues were just as frequent in the Middle Ages as those frightful epidemics of diseases among men that frequently swept the entire known globe, starting in far Eastern Asia among the crowded herds of the Mongolian steppe and swinging from nation to nation until it died out in the Arctic regions—not from the cold but merely from lack of more material to creep upon.

The foot and mouth disease, known likewise as apthous fever, epizootic apthia, infectious apthia, eczema epizootic, is, so far as science today is concerned, a closed book, both as to specific germ or bacillus which causes the scourge and the cause or cure thereof.

Science Can Do Little. All that modern science can actually do even to this day against foot and mouth disease is a primitive and brutal extermination of the victims of the fever before other creatures have become infected by it.

Loeffler, a celebrated scientist of Germany, and today perhaps the man most experienced in combating foot and mouth disease, tried inoculating healthy cattle with injections of infected material and produced immunity in a great majority of his cases, but the animals thus treated were actually this inoculation would

merely spread the disease and serve to trench it more firmly in infected districts.

Root and branch, foot and mouth as it were, all cattle in these United States once infected, and indeed, when clearly subjected to infection are slaughtered with no attempt to cure or alleviate.

In Germany, however, the disease has been endemic for 30 years and has cost the empire a hundred millions of dollars, enough money to duplicate Emperor Wilhelm's cherished and vaunted navy. In Germany the disease is so widespread that slaughtering the animals would ruin the farmers of the nation, so that vaccination, which is what Loeffler's inoculation process practically amounts to, has been tried with fairly good results.

While such a dangerous foe to cattle, sheep, goats, hogs and every other animal that treads on cloven foot, the mortality of apthous fever is not as high as with some other diseases. It runs from ten per cent, as the usual figure, to as high as 50 per cent, where reinfection has occurred; for one attack of foot and mouth disease does not confer immunity on the sufferer from later attacks of

the fever. In Germany, in 1890, there were of known cases actually located and identified so as to enter into the statistics of the empire 431,235 cattle, 230,860 sheep and goats and 153,808 hogs. During this year the foot and mouth disease was rampant in France, Italy, Belgium, Austria-Hungary, Switzerland, Roumania and Bulgaria. In 1887 in England alone, the losses from cattle infected with apthous fever ran as high as \$5,000,000 and compared to the United States, England produces so little cattle as to be not worth the comparison from a financial viewpoint.

Germ Cannot Be Caught. The germ of the plague has been sought by many scientists and in every known manner. Numerous attempts have been made to cultivate the germ and stain it, so as to get a suitable culture for the microscope. Careful experiment has demonstrated that the bacillus will pass easily through all the standard germproof filters and even through some which, at enormous expense, are especially constructed to catch and isolate the tiny and slip-

pery germ of apthous fever. Its size must be indefinitely minute. It is a hill-pool even among a class that can hang by the billion in a drop of fluid on the point of a needle.

Human Beings Can Be Infected.

While human beings do not get the disease from eating the meat of animals suffering from foot and mouth disease, they readily take infection from the milk. Unboiled milk will invariably convey the disease to human beings and especially to children. Regions where the fever prevails habitually show thousands of cases, especially in children, who naturally are greater milk drinkers than adults. There is in human beings a high fever and intense pain and difficulty in swallowing. Within two days the patient breaks out with blisters in the mouth and on the fingers. These sometimes cause dangerous ulcers, but death rarely comes to the human being from apthous fever. In fact, this disease follows the findings of modern pathology, which has demonstrated that the human animal is best fitted to fight any and every germ of disease known to medicine. The vast majority of diseases common to both man and the brutes find a far readier prey in the lower animal.

Government Works Swiftly.

The work of the government, once the dread foot and mouth disease has been reported from any district, is swift and relentless. An advance guard from the veterinary department hastens to look the suspects over and make a pathological test as to the true nature of the trouble. If the verdict is in the affirmative the national government immediately promulgates a quarantine order that shuts up the suspected territory in a net through which no means of contagion can escape.

This is followed up by the speedy arrival of men who, by boyhood memories, infected animals, sweep the stables, feed-

ing places and even suspected meadows with disinfectants. Into streams, thought capable of having been infected, formaldehyde is poured and not a vestige is left unburned of the hay, oats, corn or any other food which could possibly have been muzzled over by the diseased animals.

No especial hardship is worked by this slaughter of the best animals and the stern destruction of every possible source of contagion. The national government has sensibly and justly taken the stand that what the constituted authorities decide must be destroyed for the common good of the nation should be paid for out of the common funds. So the diseased farmer or stock herder whose valuable animals have fallen a prey to apthous fever is not only protected from future infection, but is promptly paid a fair market price for the animals destroyed.

Difficulties Are Tremendous.

Tremendous difficulty is sometimes encountered in getting the diseased animals into such quarters that they can be killed. Even greater difficulty has been experienced in getting sufficient labor to excavate the vast graves which must be dug deep to hold the carcasses of the slaughtered animals and to put an effective layer of earth between the living and the infection that can so swiftly be absorbed from the dead.

It is only in rare cases in this country that the disease progresses to a stage where the animals froth at the mouth. Usually a high fever, sometimes as much as 106 degrees, has been encountered in foot and mouth disease, but where the deadly inflammation of the germ has reached this extreme high point recovery is out of the question, owing to serious chemical changes in the blood, among them a vicious tendency to coagulation. The final thought in the pathological search after the germ and the nature of apthous fever is that the bacillus must be some infinitesimally minute vegetable parasite which defies the ordinary tests for germs like order of color, revival, typhoid fever, etc. Its minuteness is probably the cause of the tremendous ease with which the disease can spread itself. Nothing like the Russian-Japanese War, or any of the great wars, is so easy of propagation as foot and mouth disease.

Carried Inside Doctor's Hair. It can be carried on the insides of

the very clothing of the attendants employed to exterminate it, so that in recent epidemics the physicians and all attendants have been compelled to wear big waterproof cloaks and have themselves sponged off in formaldehyde to prevent carrying the disease to healthy herds under their inspection. It can linger in a farmer's beard or in his long hair for weeks and can cross the ocean in a diseased hide, torn months before off the steer which died sick of foot and mouth disease.

So that combating this, the smallest of all germs which has apparently the greatest ease for transporting itself and its deadly activity unimpeded, medical science confronts a task of tremendous difficulty. Herds in good shape, apparently, with no signs of illness, speedily become ill-natured, drop off in their feeding and die from what the average farmer and cattlemen is disposed to term "distemper."

Cattle are subject to many plagues and foot diseases that closely resemble foot and mouth disease, and it is highly difficult for any layman, however experienced as a cattlemen, to diagnose apthous fever. It is only after a certain amount of leeway has been obtained by the epidemic that suspicion is aroused, not so much by the nature and symptoms as the tremendous and rapid increase of the fever. Thus the fever always obtains a big start and this more than any other feature of its course in the United States demands the stern weapon of complete extermination.

It is war to the knife, bitter, bloody and unrelenting; that the scientists of Uncle Sam must wage on the scourge of the cattle yards, for there is at stake an enormously profitable and proud position as not only the world's granary, but also the supplier of the roast beef of old England and the meat stuffs depended on by half a dozen other nations.

The cost of the battle runs into millions but the stake counts up far above a billion of dollars. So far science has kept the upper hand, but it would only take one serious mistake, only a slight exercise of hesitation and indecision to prevent this dread disease from invading the vast herds that roam the cattle ranges of the United States. In this case eternal vigilance is the one and only hope of safety.



The Special Imperial Chinese Embassy to the United States

AMERICA's trade and political interests in the Orient are likely to show most markedly for many years to come the impress of the influence of the special mission, which has been discharged without undue fuss or feathers by the Special Imperial Chinese Embassy, which has just visited the United States. Owing to the recent spectacular governmental "shake-up" at Peking, that put a new hand at the helm of foreign affairs in China, the members of the Special Embassy shortened somewhat their stay in the New World. However, it was only the social program, that originally contemplated elaborate entertaining, that was curtailed. The official mission of the visitors extraordinary was discharged just as originally planned.

The orientals who have recently been the republic's temporary guests comprise the most distinguished body of high officials of the Chinese Empire that has ever visited this continent. Indeed, it is asserted that these ceremonial callers from the Far East constitute the most exalted group of dignitaries that has ever traveled beyond the confines of the Celestial Empire on any mission. The attentions bestowed upon the Chinese celebrities by Yankee officials will be equalled, if not exceeded, by the courtesies extended to them in the leading capitals of Europe, whether these distinguished globe-trotters are now bound, en route home via Siberia.

While the Chinese delegation is incidentally making calls at the principal European seats of government the primary object and function of the organization is as a special embassy to the United States, as is, indeed, indicated by the circum-

stance that its American obligation was discharged first. At the head of the mission is His Excellency Tang Shao Yi, one of the foremost politicians of China, and with him as first secretary, subordinate to him in rank, but overshadowing him in title, is Prince Tsai Fu, a member of the royal family of China. While these two men are the bright particular stars of the Special Embassy that has just formally visited this country, there are in its roster numerous other distinguished Chinamen, any one of whom would be worthy of more than passing prominence had he visited this country as a private personage. To particularize, there are 11 secretaries, all men of distinction; Dr. Hsiao Chih Nan, who is attached to the embassy as medical attaché, and Capt. Hsu Shih Yang, of the Imperial Chinese Army, who is the military representative of the empire. In addition, there are under-secretaries, subordinates and servants, so that the Special Ambassador's retinue during his stay in this country numbered more than 50 persons.

The primary and avowed object of the visit of this Special Embassy to the United States was to officially thank President Roosevelt and the Congress of the United States for the magnanimous action of the republic in releasing China from paying a large portion of the indemnity awarded to the United States because of losses suffered and expense incurred as a result of the Boxer uprising of almost 10 years ago. This country did not waive all obligations in the matter, as has sometimes been stated, but by action of Congress it did remit about \$11,000,000 of the indemnity. The action taken contemplates the maturity in 1940, as originally proposed, of the bonds issued for the purpose, which will reduce the yearly payments, of which



Secretary Chang

China has already sent to this country upward of \$9,000,000 in principal and interest. In formal acknowledgment of China's sense of obligation, the Special Ambassador at his first audience at the White House presented to President Roosevelt a letter from the late Emperor of China, in which that ruler commended the Chief Executive for his magnanimity in taking the initiative in the matter and praised Congress for its proof of friendliness in adopting the President's recommendation. A tangible evidence of the gratitude of China's ruling powers, the Special Ambassador brought numerous gifts. The collection of thousands of rare and



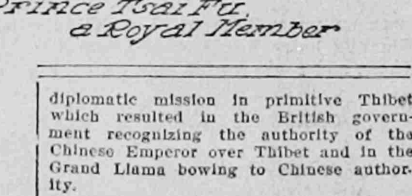
Tang Shao Yi, Head of the Special Embassy

valuable Chinese books which constituted the present to President Roosevelt, the latter has turned over to the Library of Congress. In addition there were presented to the President, by the minister, a number of costly silks, satins and probably the most magnificent tiger skin rug in existence, whereas the late Emperor of China sent to the President's daughter, Mrs. Alice Roosevelt Longworth, a superb jeweled bracelet. There is little doubt now that the official and ostensible mission of Tang Shao Yi and his associates was but introductory to a confidential errand of extraordinary significance—namely, the extension of a more or less veiled invitation for the United States to join hands across the sea with China in an alliance that would, if consummated, prove a seven-day wonder in international political circles. There is reason to believe that in this part of their mission the Chinese visitors were but partially successful. While the officials of the State Department have made no public announcement on the subject, it is suspected that they delicately conveyed to the visitors the information that, whereas the United States is desirous of seeing the territorial integrity of China preserved, the people of the republic would scarcely countenance an open offensive and defensive alliance between the two nations. Moreover, the conclusion of the recent agreement between the United States and Japan looking to the maintenance of the so-called "open door" to the invaluable trade ports of the far East rather forestalled the necessity for any definite understanding with China.

For all that Uncle Sam has not looked arms with the mighty Mongolian, there is no doubt but that Tang Shao Yi, in his recent visit, has paved the way for a better understanding between the two powers. Certainly there could have been no choice of a Celestial statesman better qualified for this difficult task. Tang Shao Yi is probably the foremost leader of the progressive element in China and is accounted the ablest representative of his race who has undertaken international negotiations since the days of Li Hung Chang. Moreover, he speaks English fluently, having been educated in the United States. Tang was one of the first groups of Chinese boys to be brought to

this country by Young Wing in order that they might be educated, and he spent eight years here, attending educational institutions in New England and also Columbia University. The concluding period of his stay in the United States the special Ambassador devoted to visits to those localities in New England renowned for their boyhood memories. Four of his nephews are now living at Springfield, Mass., in the same house and with the same people who were so kind to Tang Shao Yi in his youth.

Not only has Special Ambassador Tang, who is now in his forty-sixth year, been for some time past closely in the confidence of the royal family of China, but he has accomplished much on his own initiative. It was he who first suggested to the late Emperor Dowager the wisdom of a modification in the form of government of China and his memorial to the throne petitioning for a constitution and a parliament made him at once the leader of the reform movement in the empire. Likewise he is the most conspicuous advocate of the new policy of "Carrying out of governmental, commercial and industrial development by the Chinese themselves instead of by foreigners, as has been the case to such an extent in the past. Only recently Tang Shao Yi performed a most important

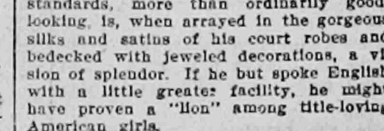


Prince Tsai Fu, a Royal Member

diplomatic mission in primitive Tibet which resulted in the British government recognizing the authority of the Chinese Emperor over Tibet and in the Grand Llama bowing to Chinese authority.

Perhaps the most notable of Tang's achievements in recent years was the restoration of the province of Mukden, of which he was made governor last year and which he found prostrate from the ravages of the Russo-Japanese War, but the really monumental work of his career is to be found in the reform of the Chinese currency, which he has undertaken with determination. What it means to revolutionize the complicated monetary system of a nation of 400,000,000 people is beyond the comprehension of any American, but suffice to say that the monetary system of China has heretofore been the prize puzzle of the world—one that has baffled even the Chinese themselves—and if Tang brings order out of chaos, as he seems likely to do, for the establishment of a new silver coinage is already in sight, he will have earned the gratitude of all travelers and the trade interests of the world. Finally, Tang, ever since his return to China from his school experience in America has been preaching against and working against the opium evil and by reason of the influential positions he has held he has been able to do much toward ridding his country of its greatest curse.

In marked contrast to Special Ambassador Tang, the other "headliner" of the special embassy, Prince Tsai Fu, youthful in years and in appearance. This royal visitor, who not long since passed his majority,



Fung Kwai, Americanized Chinaman

is the son of His Highness Prince Ching, the foremost statesman of China. Prince Tsai Fu, who is, according to oriental standards, more than ordinarily good-looking, is, when arrayed in the gorgeous silks and satins of his court robes and bedecked with jeweled decorations, a vision of splendor. If he but spoke English with a little greater facility, he might have proven a "lion" among title-loving American girls.

Ambassador Tang's "right-hand man" in the Special Embassy is Mr. Fung Kwai, who might almost be termed an Americanized Chinaman, for all that he continues to occupy a prominent place in the diplomatic service of his government. Mr. Kwai, who was educated in this country and has an American wife, was for many years first secretary of the Chinese Legation at Washington, and, indeed, returned to his native land less than a year ago. It was the original intention that China's special ambassador and his suite should entertain lavishly during their stay in America, and to that end there was leased one of the most notable mansions in Washington. However, all these plans had to be abandoned as the result of the deaths of the Emperor and Empress Dowager, which occurred while the Special Embassy was crossing the Pacific. In consequence, all the Chinese visitors were thrown into the rigid official mourning of their race—a mourning so strict that they could not even attend President Roosevelt's New Year reception. Indeed, this oriental etiquette which prohibited them from making or receiving calls was given as the main reason for the sudden termination of the visit of the Special Embassy. It had been planned to remain in America until after the inauguration of President-elect Taft, dispensing bounteous hospitality all the while, but with a veto unexpectedly placed on the social program, and with the official functions of the mission at an end, it was decided that the delegation should cut short its visit.

WALDON FAWCETT.

Millions Wasted in Wood Pulp for Paper.

THE scientist of today has no more golden quest before him in the realm of chemistry or invention than the reward which awaits the fortunate man who can invent some practical commercial method of turning waste material into wood pulp. The paper famine is still gnawing ravenously at the very heart of the publishing trade and, indeed, affects noticeably many other lines of industry.

A vast drain on the resources of the country's forests for the production of wood pulp and paper is the result of the tremendous waste which has been made of forests and the woefully extravagant methods pursued by the saw and paper mills of the United States for a long time. It is true that within the past

few years much of this waste in the factories and mills has been done away with, but it will not be until some man's brain has solved a method for using up wood mill waste material, especially including the sawdust, that any effective relief can be hoped for.

The only new material for the manufacture of paper which is said to hold out present hopes of an effective substitute for wood pulp is the use of corn stalks. It is claimed that paper of a serviceable grade has been obtained from corn stalks. If this is actually true in a commercial sense it will bring considerable relief.

An invention to allow the utilization of mill sawdust for the production of wood pulp is claimed to be now on the point of

being perfected in a practical fashion. This would also mean a tremendous stride toward relieving the wood pulp and saw paper situation.

The United States Forest Service has made careful study of the alleged waste allowed in big sawmills and has reported to the national authorities that mills with a total cut of 5,440,000,000 feet of wood showed a waste of 1,870,000 cords of sawdust after the best of the wood material had been cut up into laths. Tens of thousands of tons of sawdust each year are thrown out as refuse or sold for minor purposes for insignificant sums which would be worth an immense amount of money if chemistry could find a cheap, practical method of turning it into useful wood pulp for the paper mills.

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India, according to parliamentary reports and the big English newspapers is getting more and more devoted to English rule, does, nevertheless, cause much anxiety to Great Britain, the ceaseless agitation among the intelligent Hindus against the continued rule of the British, without any form of representation in the governing body of the empire, being the chief reason. The enlightened Hindus demand that they be allowed to choose at least a few of their own number to represent the millions of East Indians and the tremendous native interests of the Hindoo peninsula. It was for this that a number of important British officials have been

assassinated recently. It was because Lord Kitchener, with the sagacity of a statesman and the relentlessness of a soldier, was fighting this pro-Hindoo movement in India that he was recalled.

Tremendous money interests, which were influenced by the vast wealthy natives behind the pro-Hindoo movement, were the real influence that brought about Lord Kitchener's recall and the retirement of Lord Curzon from the viceroyship in India. The British government maintains a huge police system, practically modeled after the famous Third Section of the Russian police department, which is constantly occupied in trying to follow up the plots of the Indians

mores against the British. The main causes of the dissatisfaction in India are first of all the absolute lack of political representation by the natives, secondly heavy taxes are being levied on the shoulders of these people, who occasionally starve by the tens of thousands whenever the wheat crop falls slightly below the average. Many East Indians of importance are now coming to the United States to finish their education. This is violently opposed by the British influences all over the world. It is feared that important Hindoos educated at American colleges and universities will return and increase the dissatisfaction with the British rule in India.

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